

Chemistry Quarter Project

2nd Quarter = 1st Semester Review Project

INTRODUCTION:

You and your group must split up the major topics from 1st semester and then each person must present on their topics to the class. Each presentation must include a PowerPoint that is submitted to the teacher as well as a poster that the group must present to the rest of the class.

PURPOSE:

The purpose of this project is to help everyone in the class review for the 1st Semester Final by everyone reviewing a topic and teaching it to the class.

REQUIREMENTS:

Project is almost identical to the 1st quarter project, but each student will be responsible for their own presentation.

Part 1 = PowerPoint

- Must be created in Microsoft Powerpoint (or Google Slides)
- First slide must be a title page with topic as the main title and your name listed as the subtitle
- Last slide must be a reference page with the source of any information used listed properly in APA/MLA

Part 2 = Posters & Presentation

- Must be done on poster board with your name written on the back
- Must have at least 4 bullet-point type items that can be read in back of the room – no small text to read
- Presenter should know the material well enough to present without reading off the poster
 - You will have access to the Smart-Board to do example math problems or draw if needed

| Powerpoint Rubric | 0 points | 1 point | 2 points | 3 points |
|-------------------------------------|-----------------------------------|--|--|--|
| Title Slide on 1 st Page | Missing Title Slide | Title Present, Topics Not Present | Title Present, Not All Topics Present | Title Present, All Topics Present |
| Background on Topics | Missing Background | All backgrounds present, but not in detail | All backgrounds present, but one not in detail | All backgrounds present and in detail |
| Explanation of Topics | Missing a Topic | All topics present, but not explained in good detail | All topics present, but one not explained in detail | All topics present and explained in detail |
| Application of Topics | Missing How Topics are Used Today | How topics are applied today present, but not explained in good detail | How topics are applied today but one not explained in detail | How Topics are Applied Today explained in detail |
| References Slide on Last Page | Missing Reference Page | Sources listed, but not properly in APA/MLA | Less than 4 sources listed properly in APA/MLA | At least 4 sources listed properly in APA/MLA |

| Presentation Rubric | 0 points | 1 points | 2 point | 3 points | 4 points |
|--------------------------|------------------------------|--|---|---|--|
| Visual on Poster | No poster or did not present | Visual too small, not accurate and detailed | Visual proper size, not accurate or detailed | Visual proper size, accurate and detailed | Visual proper size, very accurate & very detailed |
| Other Information | No poster or did not present | 0-1 additional pieces of information listed or 2 listed but can't read | 2 pieces of readable info listed or 3 listed but can't read | 3 pieces of readable info listed or 4 listed but can't read | 4+ additional pieces of information listed and can be read from back |
| Understanding of Content | Did not present | Student unable to demonstrate minimal understanding of topics | Lack of clarity and lack of thorough understanding | Lack of clarity or lack of thorough understanding | Clear and thorough understanding of topics |
| Presentation | Did not present | Presented, but needed to read word-for-word off poster/notes often | Presented, but read directly off poster or had to read note cards often | Presented, but needed to use note cards to remember what to say | Presented and only had to use the 4 main pieces of info on poster to guide |
| Quality of Work | No work to be evaluated | Work was below-average quality or clearly done last minute | Work was of average quality and/or clearly done last minute | Work was of high quality and time clearly put into it | Work was of very high quality and lots of time clearly put into it |

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- TOPIC #1 = Chemistry
 1. Explain the subject that eventually became chemistry and how it changed into chemistry
 2. Explain each step in the scientific method and how each ties into the previous/next step
 3. Explain how it affects materials/energy/medicine/agriculture/environment & the universe
 4. Explain what matter and chemistry are, as well as the difference between pure/applied
 5. Explain each of the 5 branches of chemistry and what they study. Give examples.

- TOPIC #2 = Matter
 1. Explain the difference between intensive and extensive properties. Give examples.
 2. Explain the difference between the terms “physical” and “chemical” in science
 3. Explain the 3 basic states of matter and their general properties
 4. Explain the 2 types of mixtures and the techniques used to separate them
 5. Explain difference of an element and a compound and how to identify a chemical change

- TOPIC #3 = Scientific Measurement
 1. Explain what a measurement is and how to use scientific notation
 2. Explain the difference between accuracy/precision and how to calculate error & % error
 3. Explain the rules for sig-figs and the sig-fig rules for the 4 basic math operations
 4. Explain the 7 basic S.I. measurements, their units, and the prefixes from pico to Tera
 5. Explain how to use dimensional analysis to setup a conversion. Give examples.

- TOPIC #4 = Density
 1. Explain what density is, the formula for calculating it, and how to use it as a conversion
 2. Explain how you can measure density using a scale and a ruler.
 3. Explain how you can measure density using a scale and a graduated cylinder
 4. Explain how temperature affects density and how it can be used to identify a substance
 5. Explain how to solve each of the 3 types of possible density problems. Give examples.

- TOPIC #5 = Periodic Table
 1. Info within each square on the table. Atomic Number, Mass Number, Symbol, & Name
 2. Explain what isotopes are and how to determine number of p^+ , n^0 , and e^- in an isotope
 3. Explain the three major types of atoms (metals, nonmetals, metalloids)
 4. Explain each of the “blocks” within the periodic table (S, P, D, F)
 5. Explain groups of atoms with names (Alkali, Alkaline, Transition Metals, etc...)

- TOPIC #6 = Nuclear Chemistry
 1. Explain the people and technology on how we learned the types of radiation, and all “radio” vocab
 2. Explain the band of stability, neutron-to-proton ratio, and what a radioactive decay series are
 3. Explain fission and fusion and how to balance nuclear equations for all types of nuclear processes
 4. Explain what a half-life is and how to both radio-date and predict masses using half-lives
 5. Explain how a nuclear reactor works and how we measure

- TOPIC #7 = Ions & Ionic Compounds
 1. Explain what an ion is, how ions forms, and which elements will combine ionically
 2. Explain the general properties of ionic compounds and what charge A-group atoms form
 3. Explain how to name transition metal ions and basic naming rules of polyatomic ions
 4. Explain how to get the proper ionic formula from the name of an ionic compound
 5. Explain how to name an ionic compound from the chemical formula (main & transition)

- TOPIC #8 = Molecules and Molecular Compounds
 1. Explain what a molecule is, how it forms, and which elements will combine covalently
 2. Explain the general properties of molecules & how to accurately draw a Lewis Structure
 3. Explain the main exceptions to the Octet Rule (Boron, Phosphorus, & Sulfur compounds)
 4. Explain how to assign charges to atoms on a Lewis Structure
 5. Explain the difference between bonds and molecules in terms of polar and nonpolar